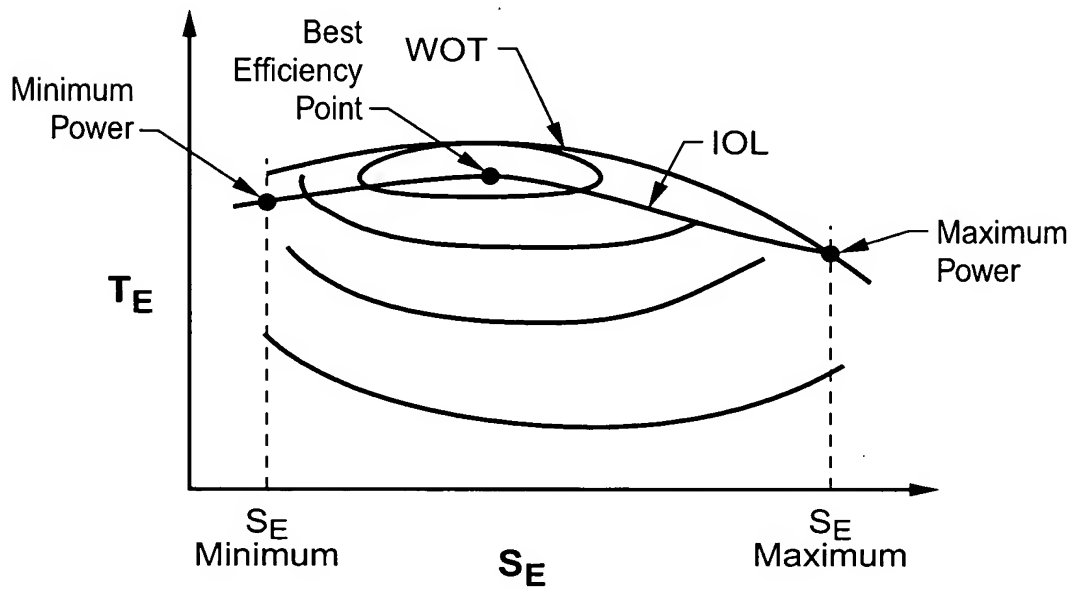
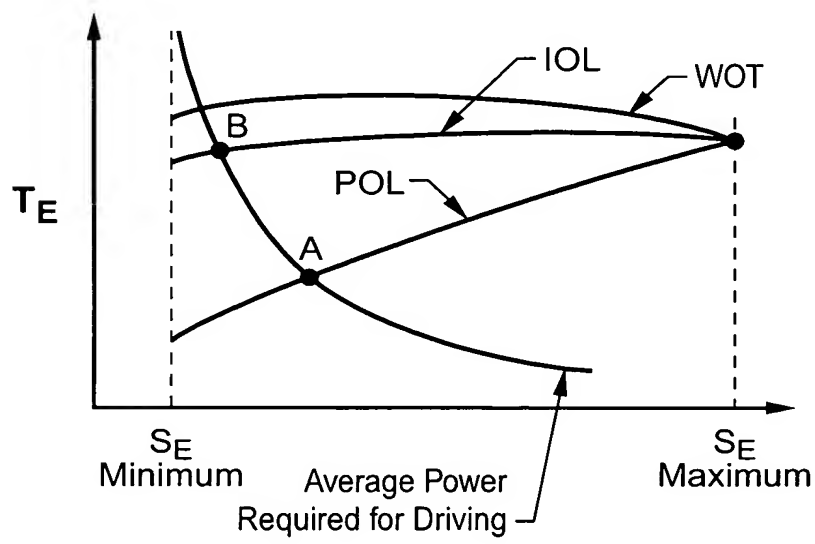


**FIG. 1**



**FIG. 2**



**FIG. 3**

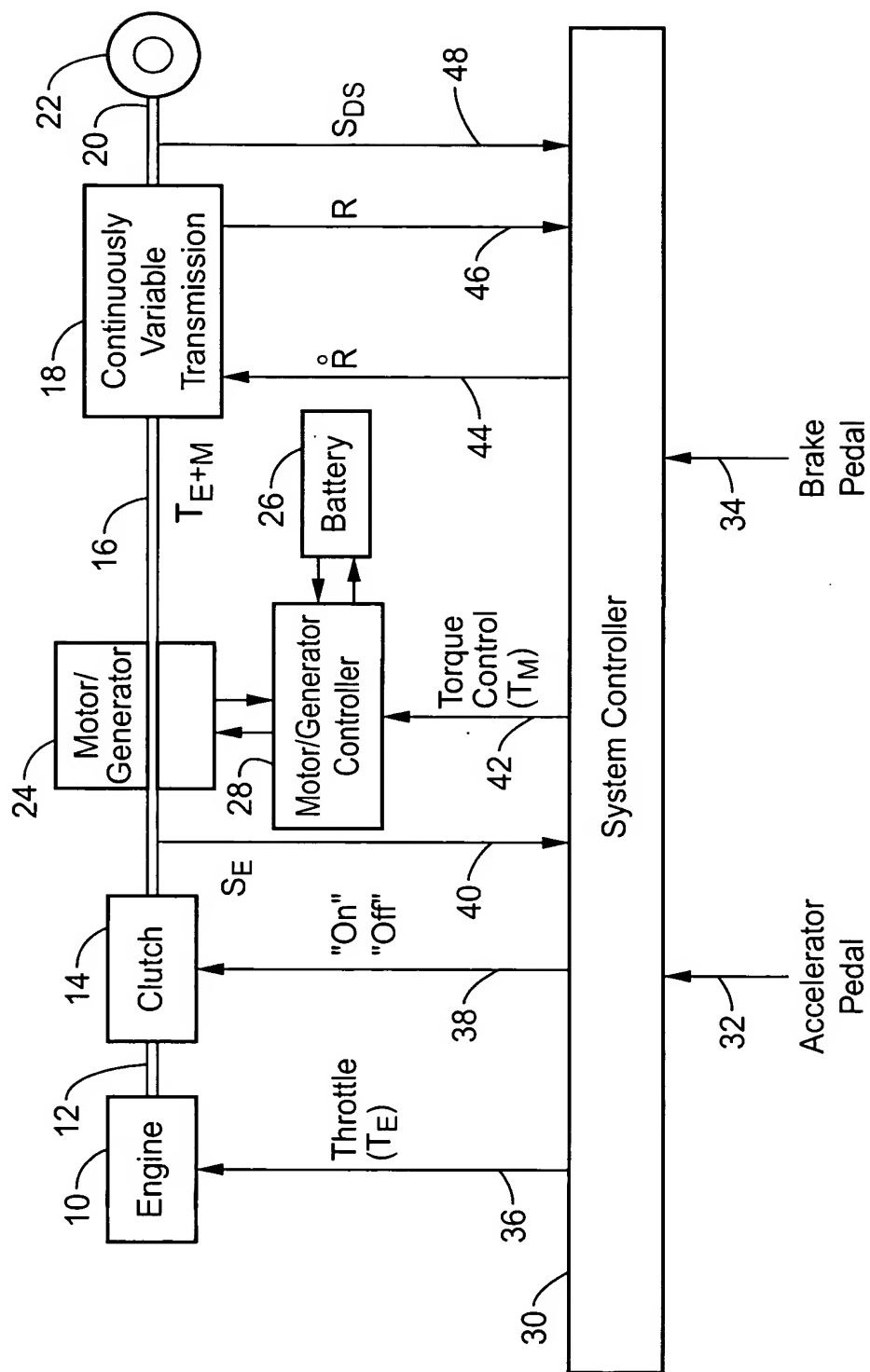
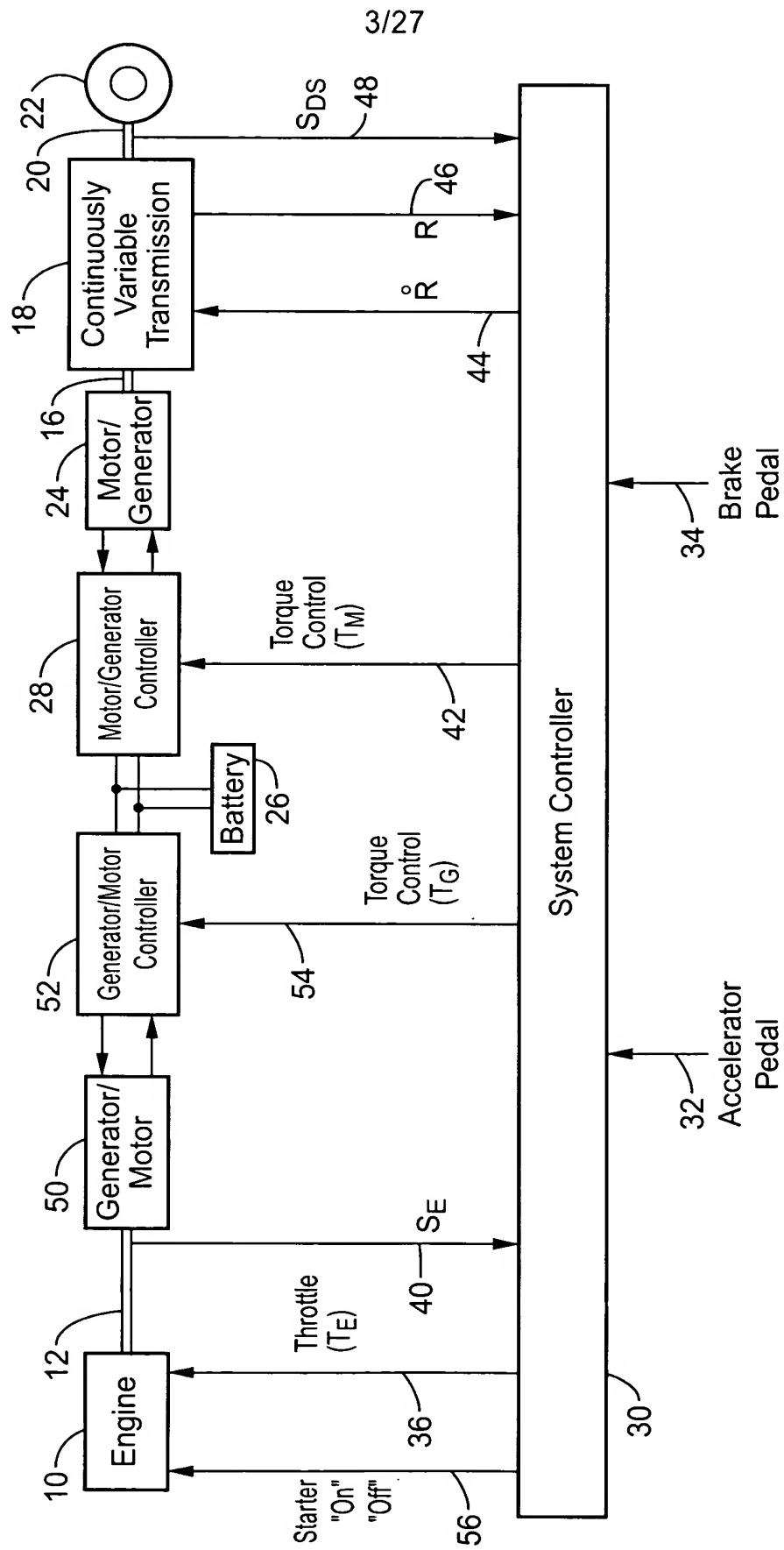


FIG. 4



**FIG. 5**

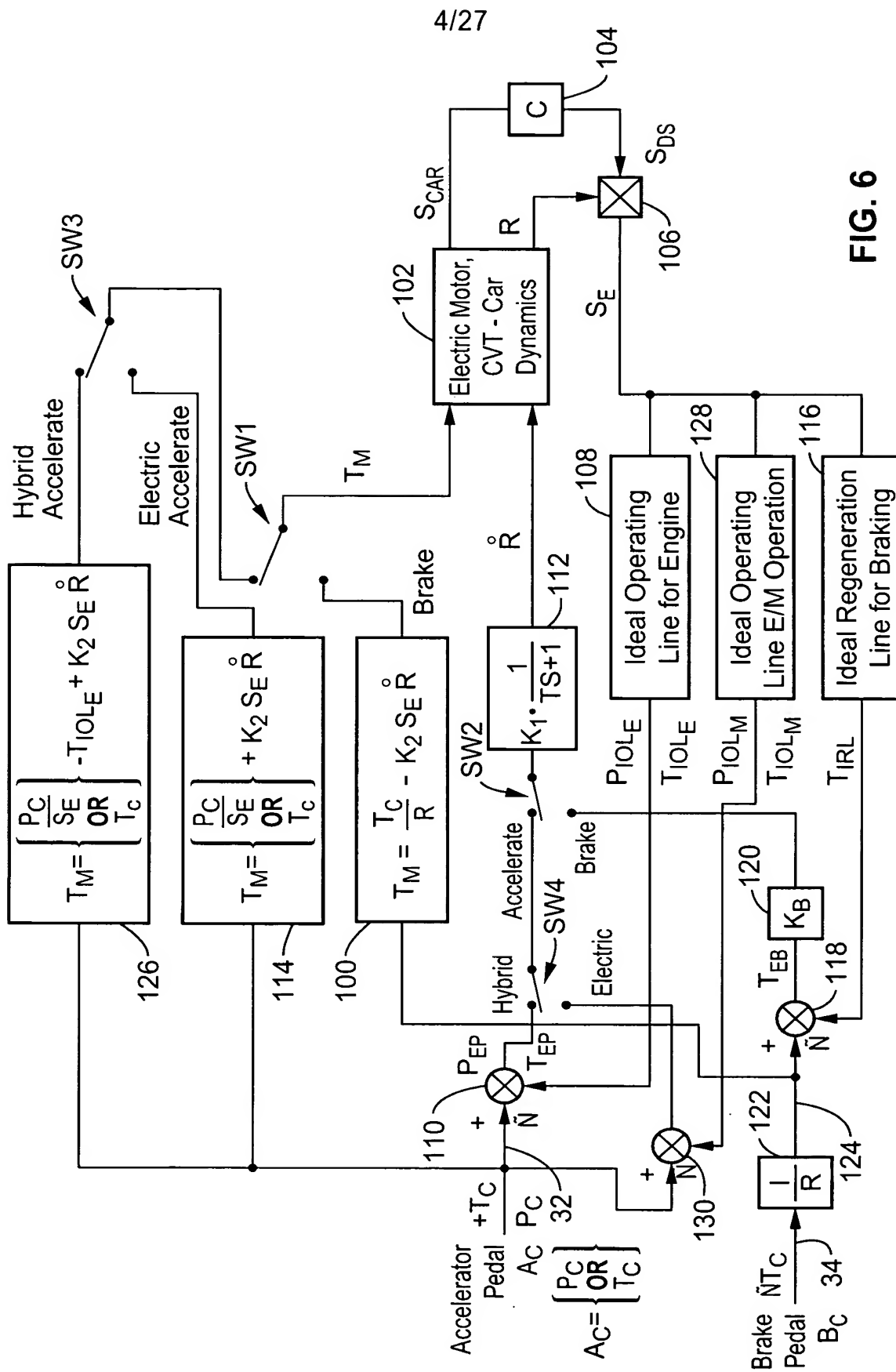


FIG. 6

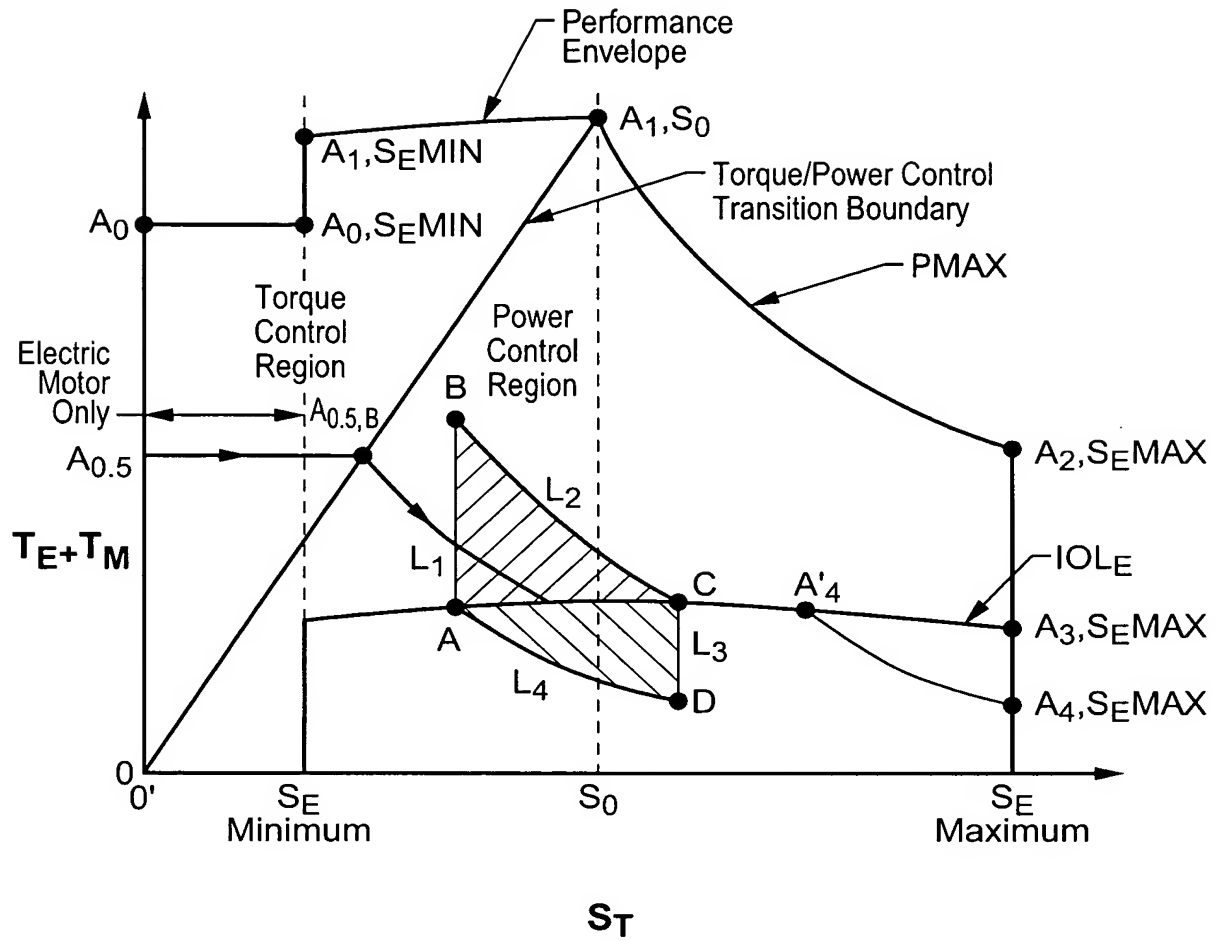
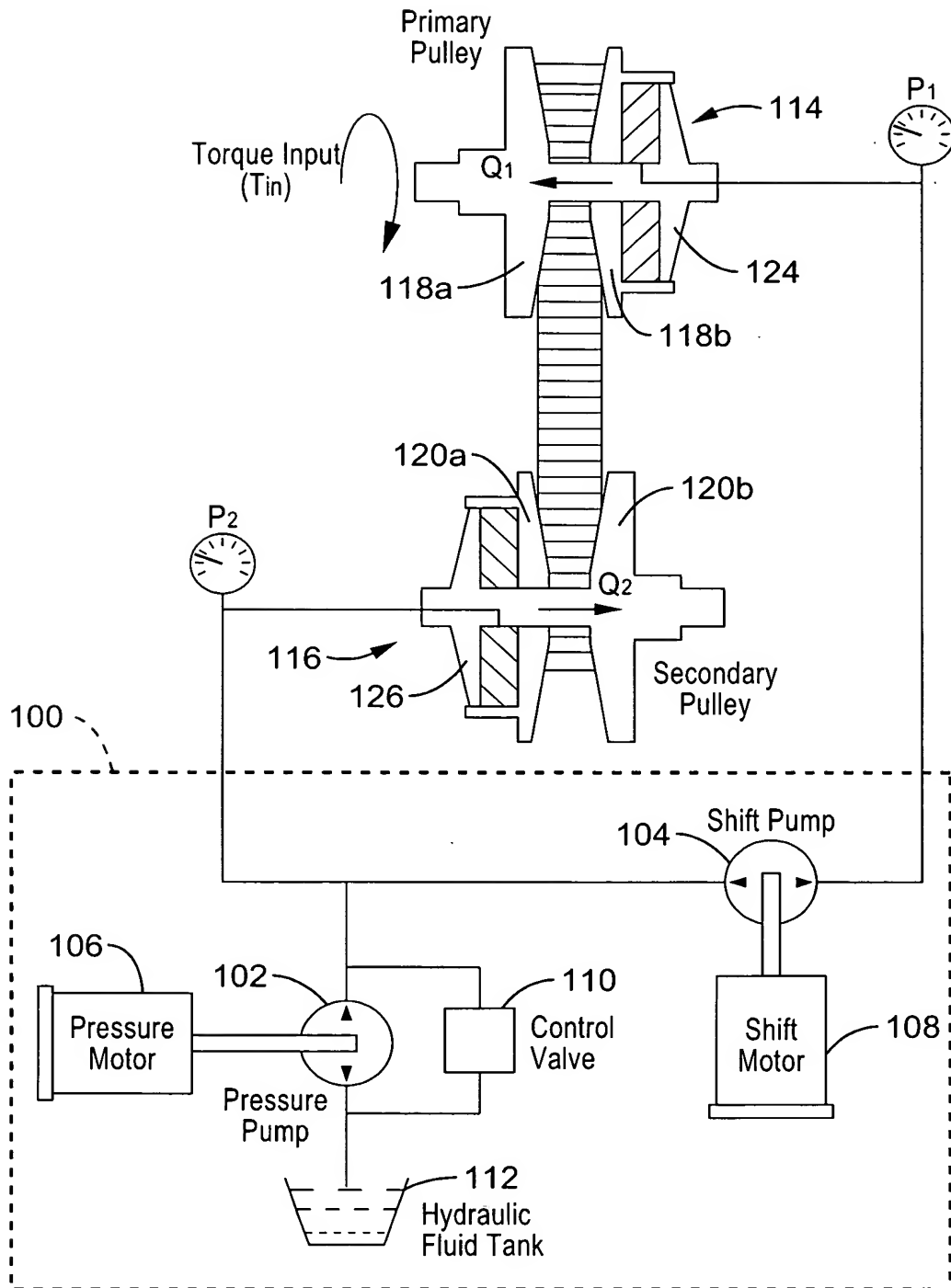
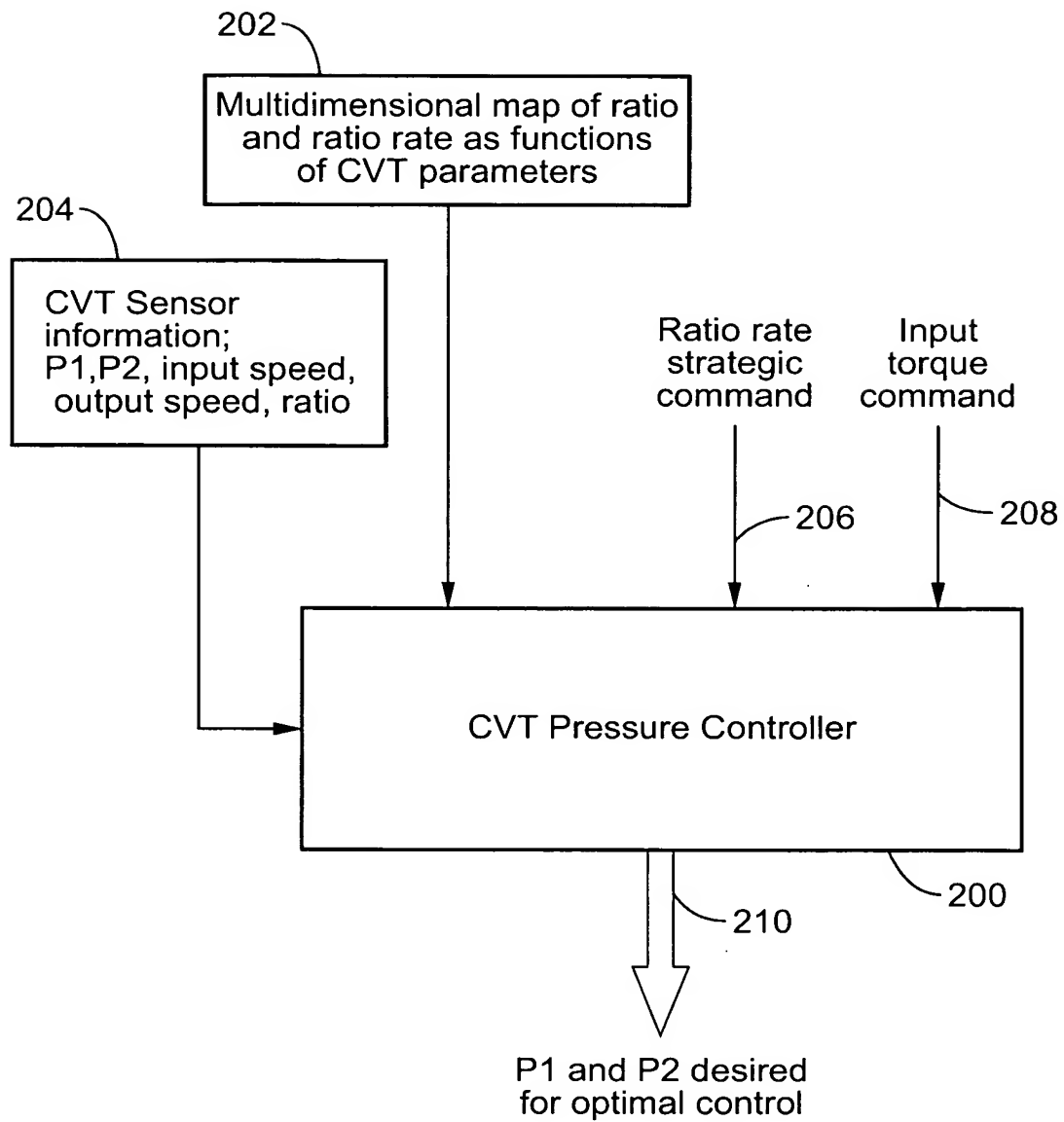
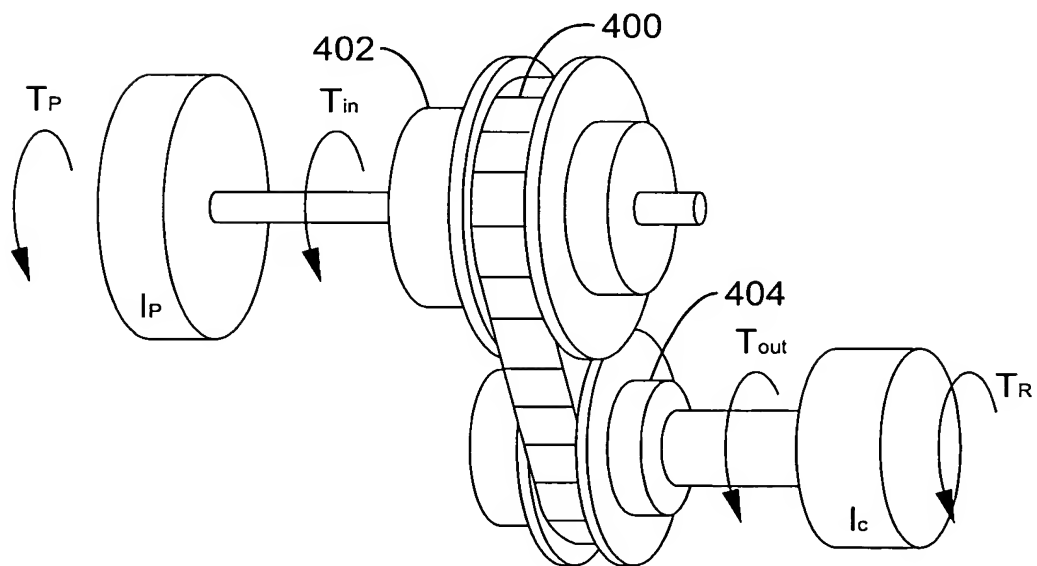
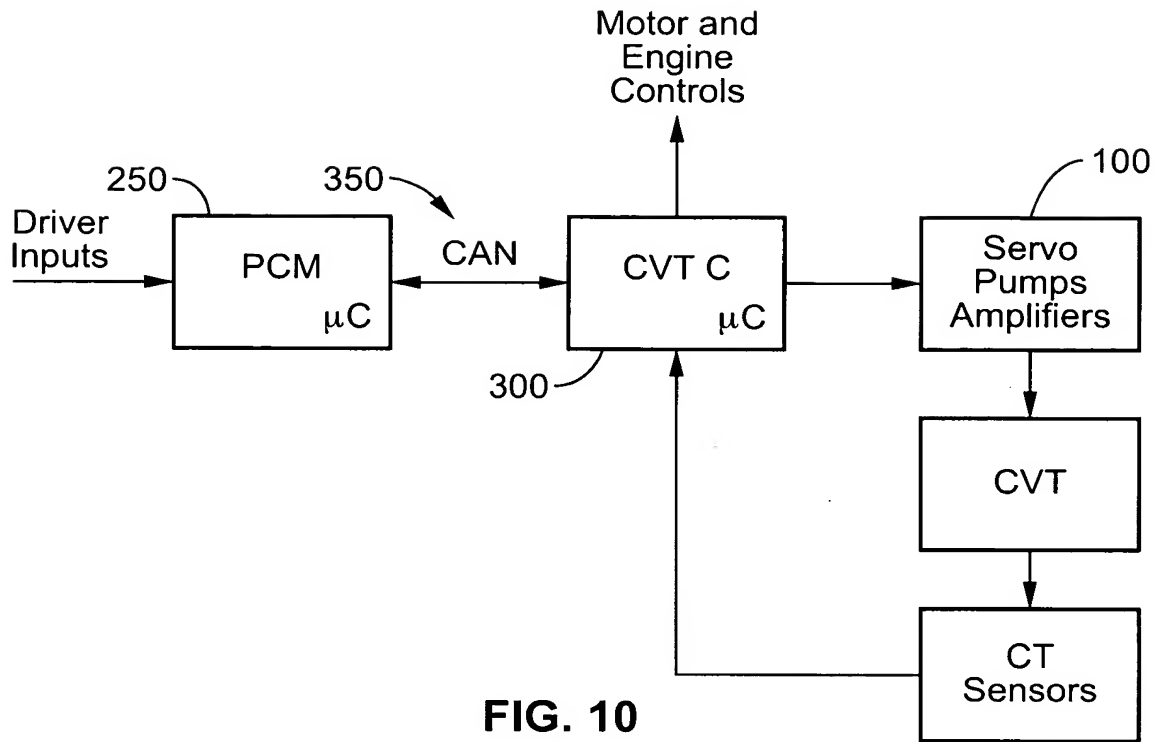


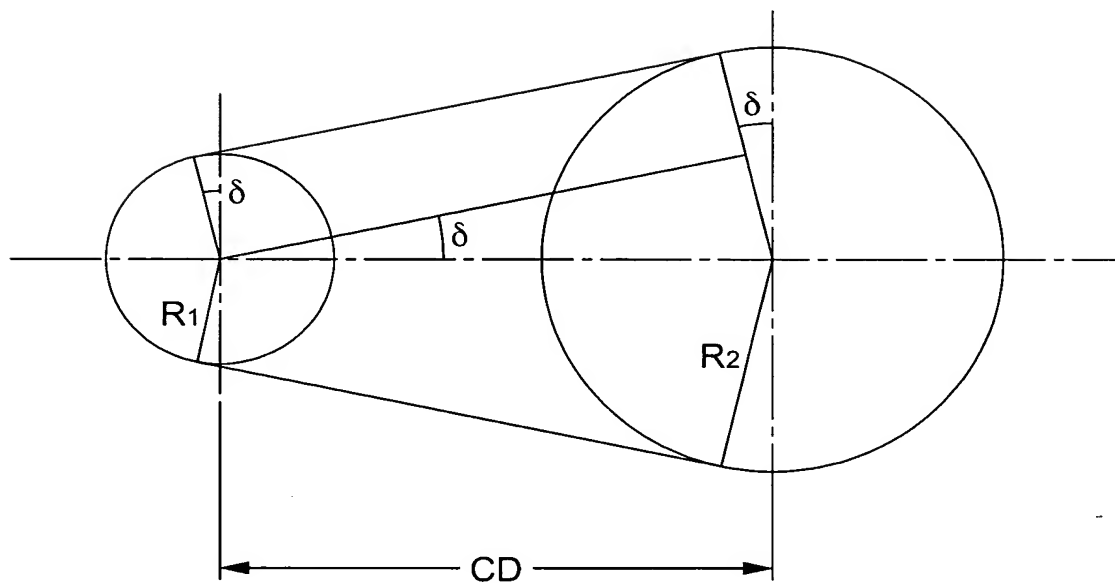
FIG. 7

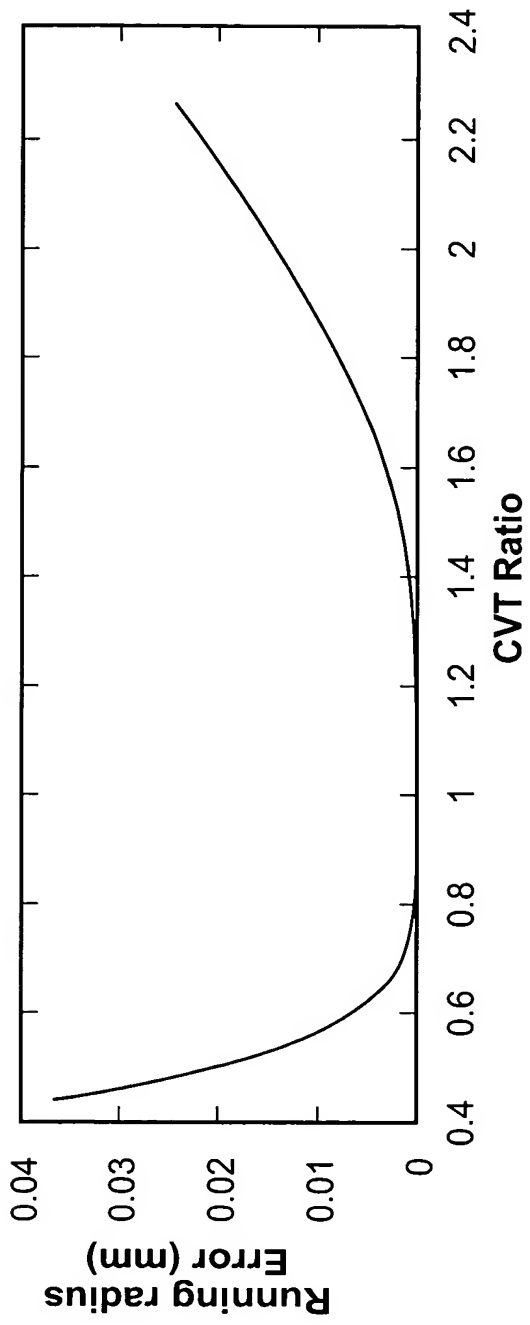
**FIG. 8**

**FIG. 9**

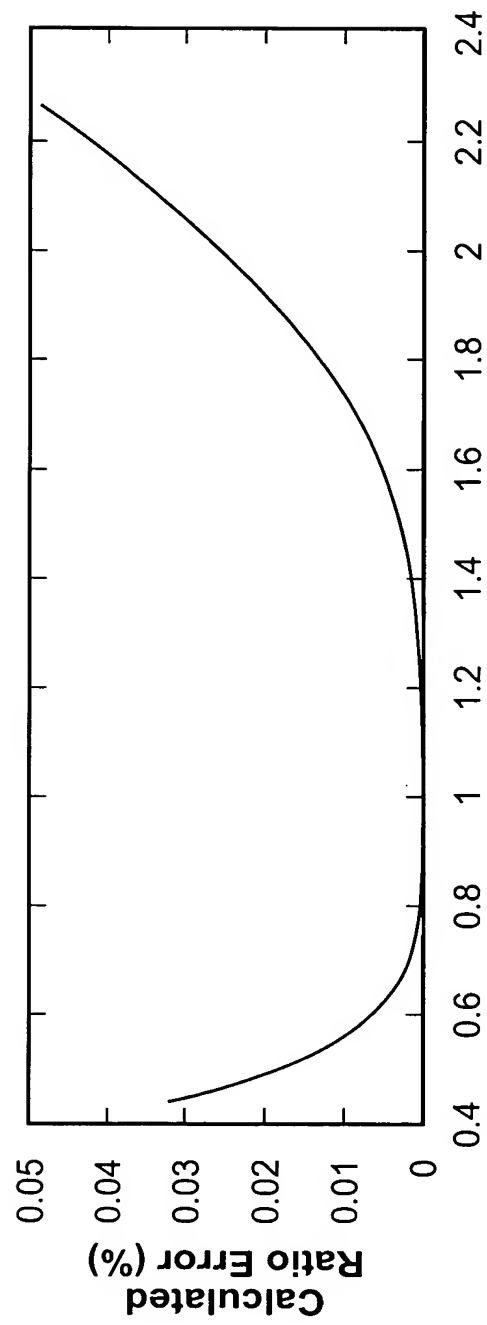




**FIG. 12**



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Errors Introduced by  
Second-Degree Approximation

FIG. 13

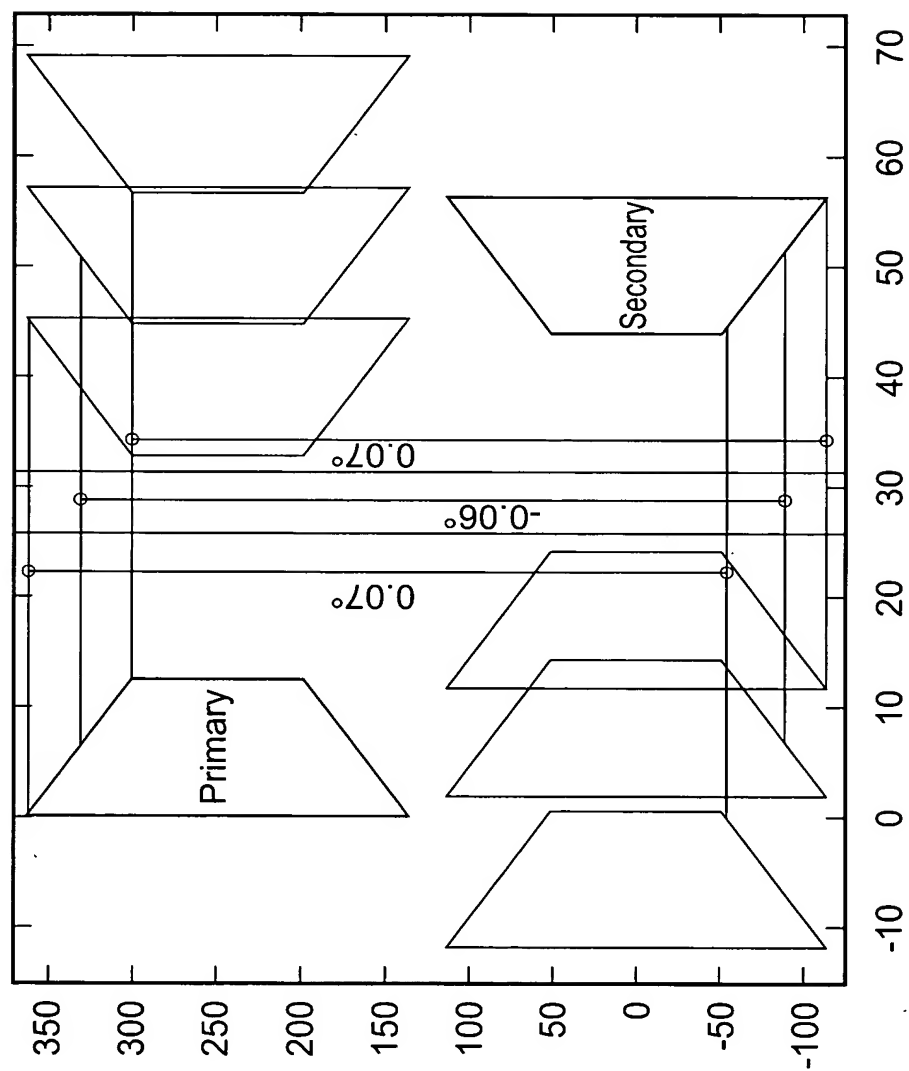
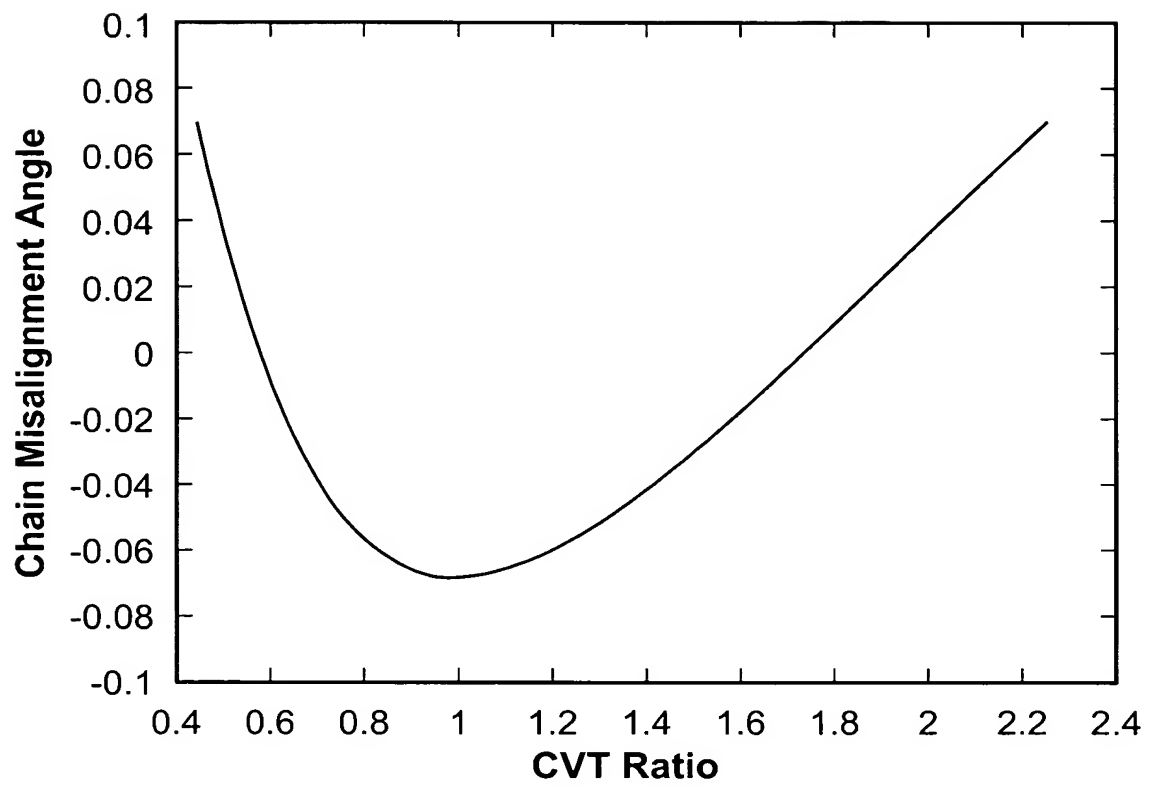


FIG. 14

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**FIG. 15**

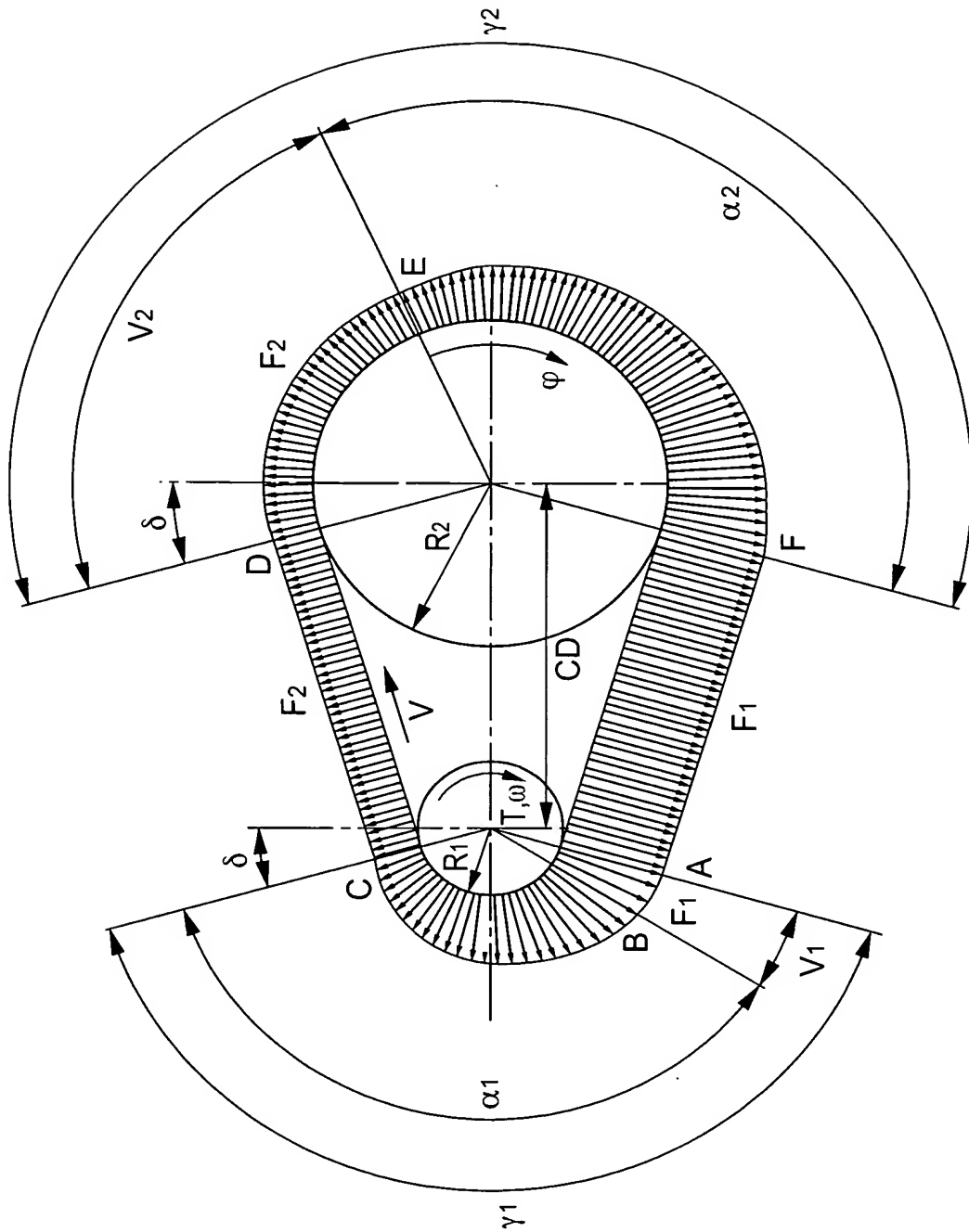


FIG. 16

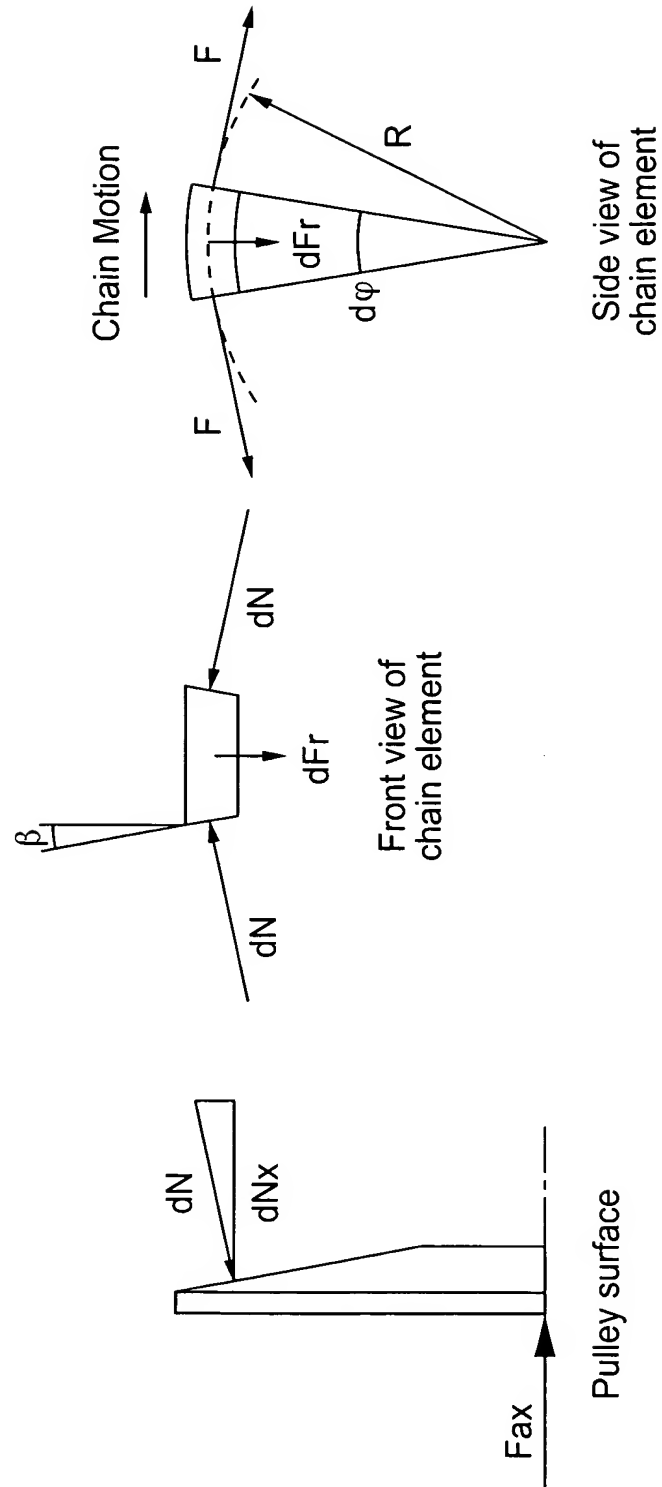


FIG. 17

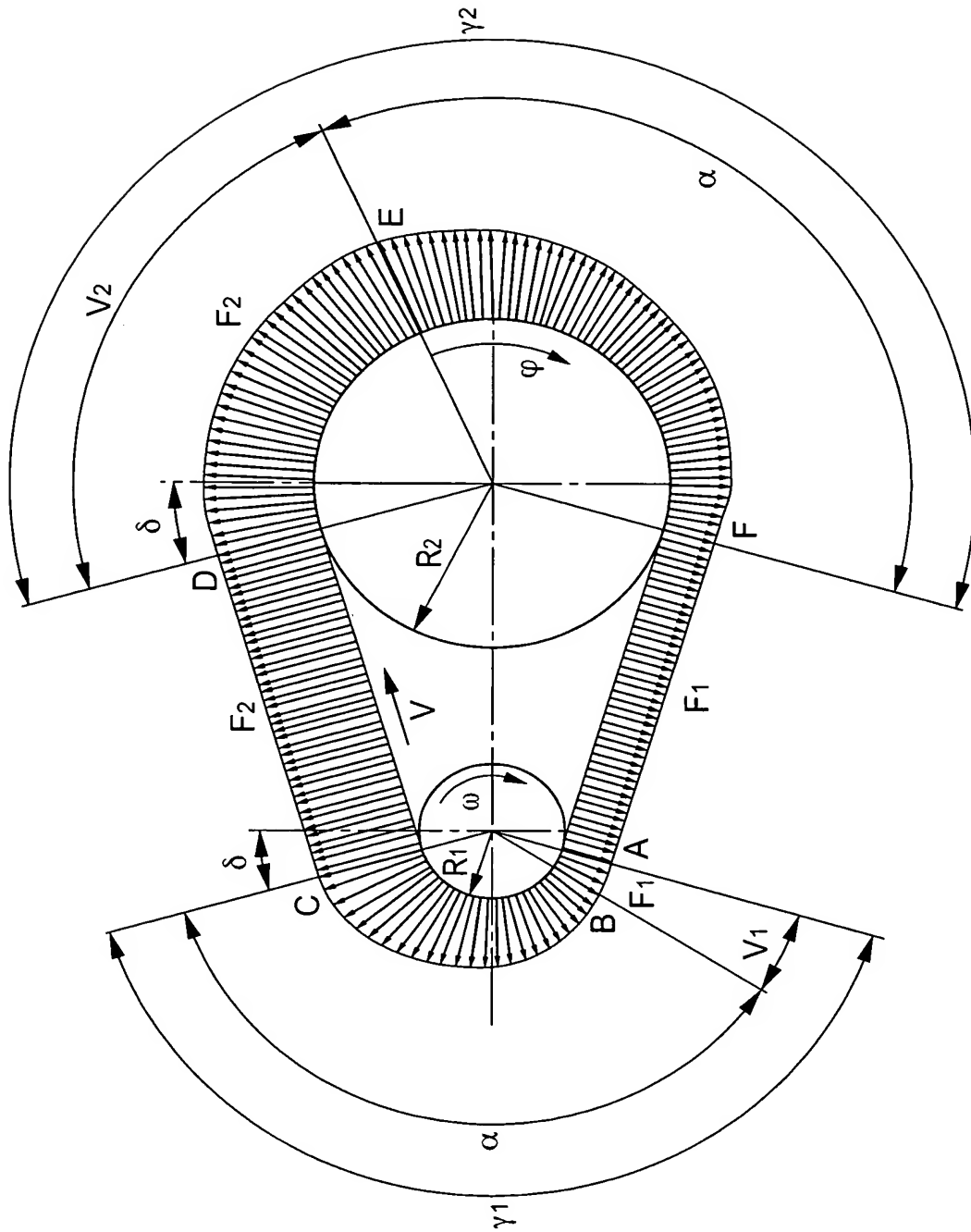


FIG. 18

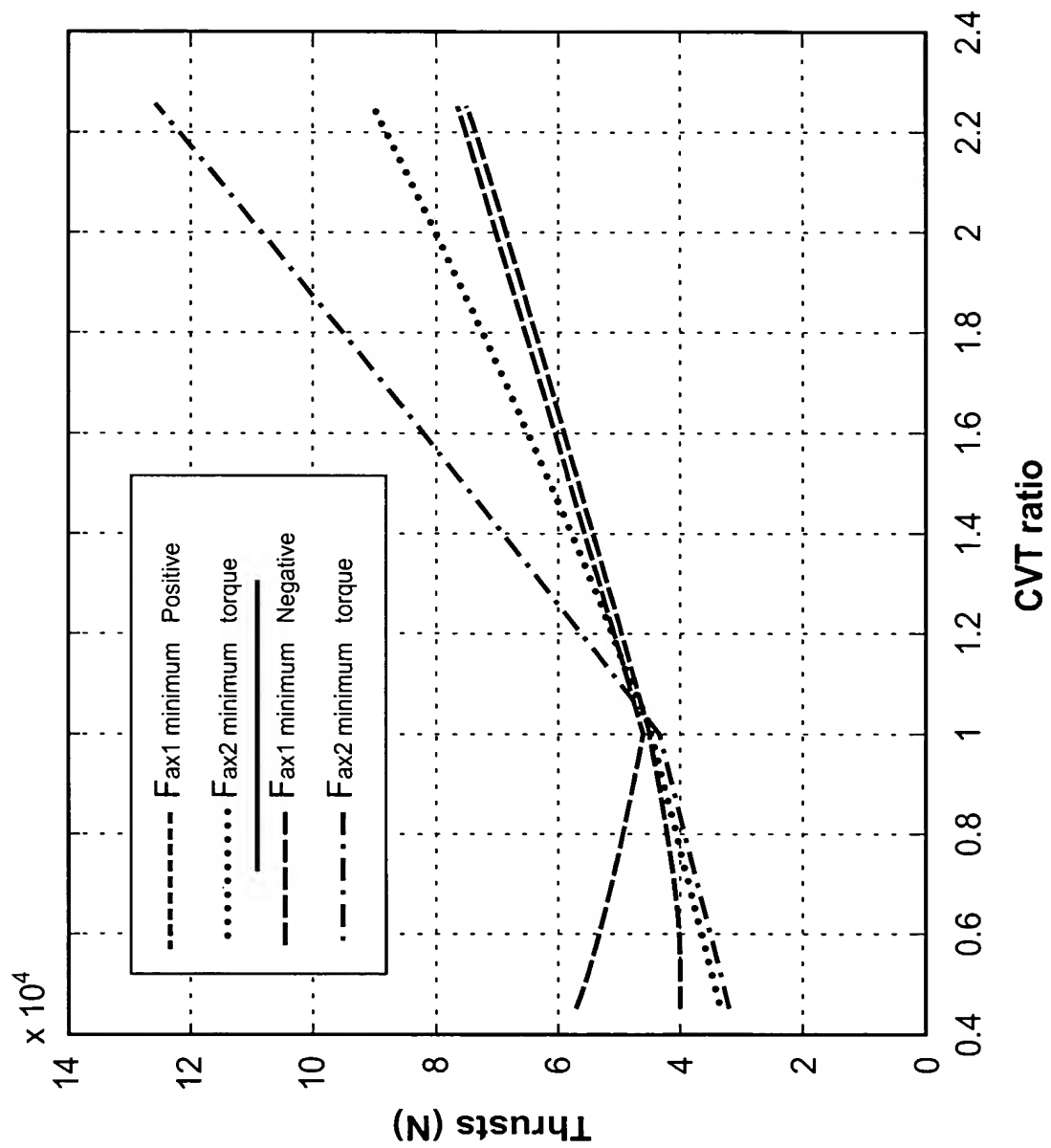


FIG. 19



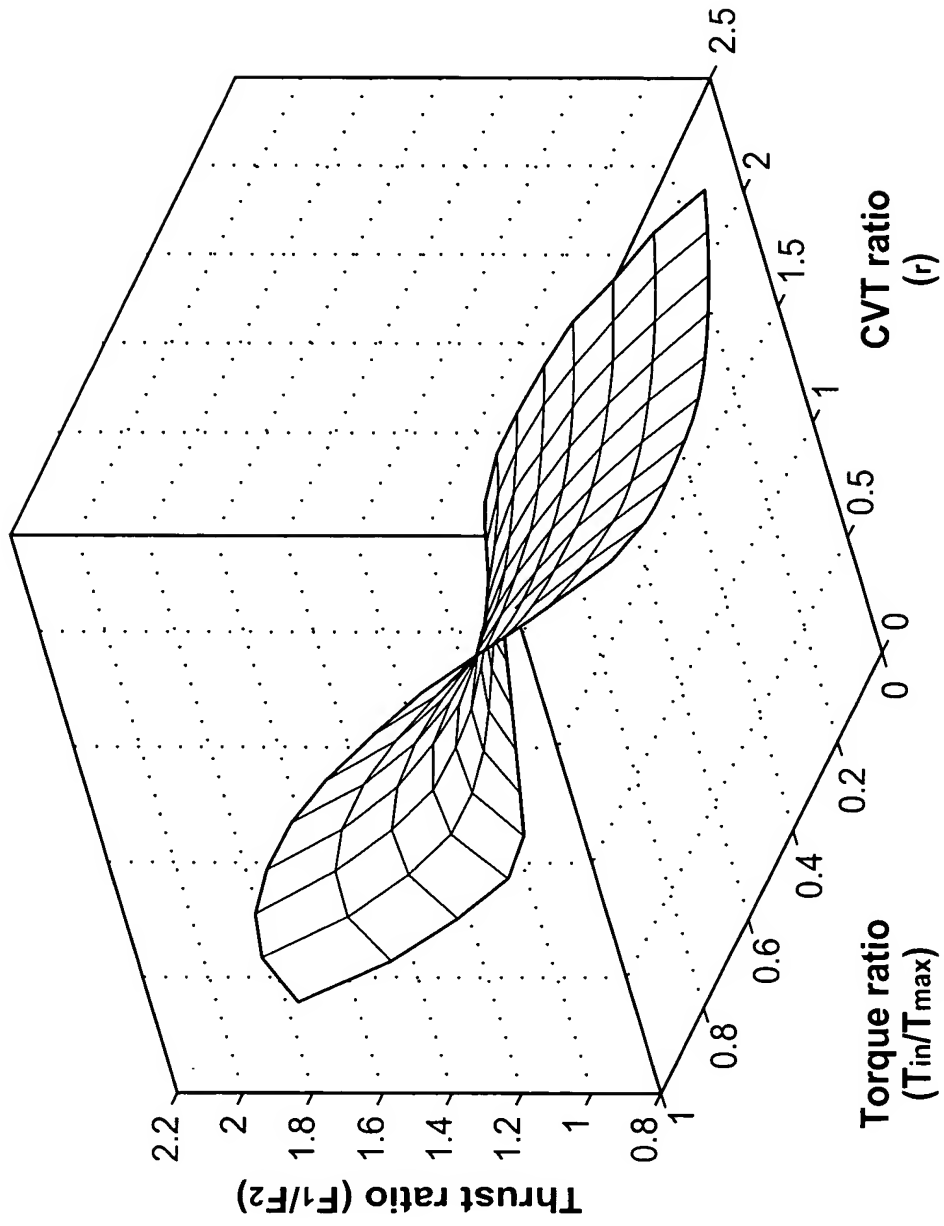


FIG. 20

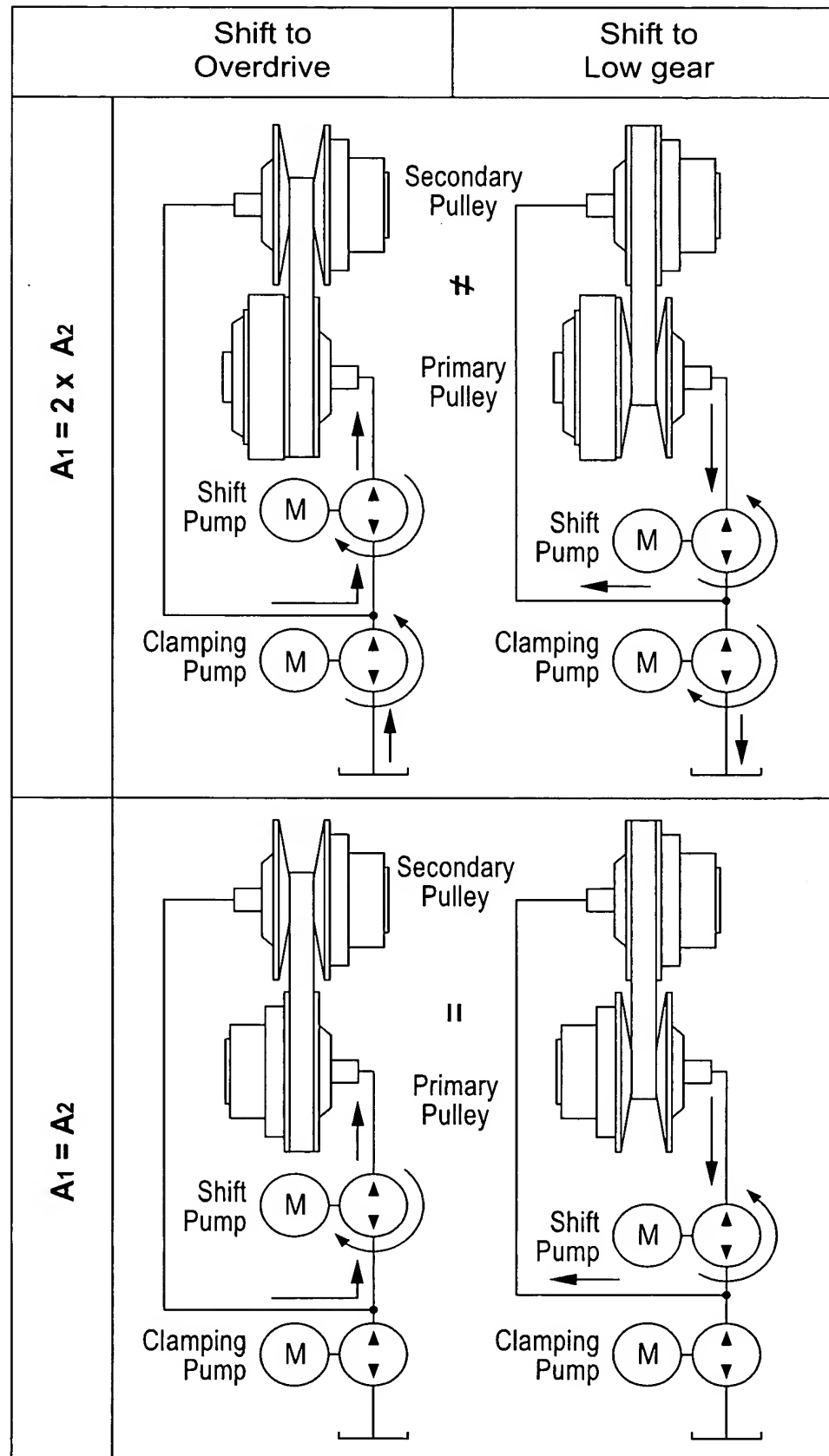
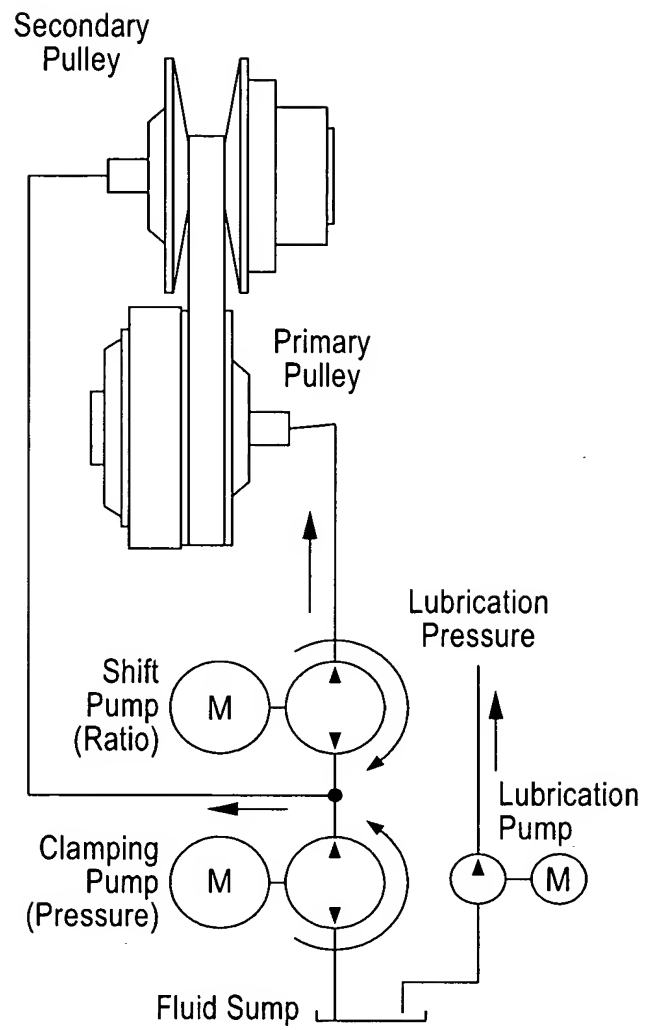


FIG. 21

**FIG. 22**

| Data        |             |       |                  |                    |                   |                    |                    |                    |           |
|-------------|-------------|-------|------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-----------|
| P1<br>(PSI) | P2<br>(PSI) | Ratio | Tcommand<br>(Nm) | Tavailable<br>(Nm) | In Speed<br>(RPM) | Out Speed<br>(RPM) | Out Torque<br>(Nm) | Dyn Torque<br>(Nm) | EM<br>(%) |
| 126.4       | 206.2       | 2.365 | 53.6             | 139.6              | 1906.3            | 812.1              | 143.2              | 104.3              | 9.7       |
| 177.8       | 204.1       | 2.163 | 52.3             | 149.3              | 1712.9            | 805.8              | 130.3              | 94.6               | 9.7       |
| 183         | 208.2       | 2.02  | 52.1             | 161.7              | 1639.3            | 814.8              | 120.4              | 86.9               | 9.7       |
| 194.1       | 207.1       | 1.813 | 54.6             | 176.9              | 1442.7            | 806.7              | 106                | 76.6               | 9.7       |
| 201.3       | 206.4       | 1.613 | 52.2             | 195.1              | 1289.7            | 807.5              | 93.7               | 67.5               | 9.7       |
| 207.3       | 207.8       | 1.41  | 52.7             | 217.7              | 1140.6            | 808.4              | 81.6               | 58.6               | 9.7       |
| 216.4       | 207.9       | 1.21  | 54               | 246.5              | 972.1             | 803.8              | 68.6               | 49                 | 9.7       |
| 228.9       | 211.6       | 1.01  | 53.3             | 287.4              | 817.9             | 803.3              | 56.3               | 40                 | 9.7       |

**Calculated ratio** = Input speed / Output speed

**Pressure ratio** = Primary pressure / Secondary pressure

**Torque ratio** = Torque command / (Torque available \* 1.2)

The torque available is multiplied by 1.2 because of the factor of safety used in the control algorithm

| Equilibrium point |       |          |
|-------------------|-------|----------|
| Calc Ratio        | P1/P2 | Tq ratio |
| 2.347             | 0.613 | 0.320    |
| 2.126             | 0.871 | 0.292    |
| 2.012             | 0.879 | 0.269    |
| 1.788             | 0.937 | 0.257    |
| 1.597             | 0.975 | 0.223    |
| 1.411             | 0.998 | 0.202    |
| 1.209             | 1.041 | 0.183    |
| 1.018             | 1.082 | 0.155    |

**FIG. 23**

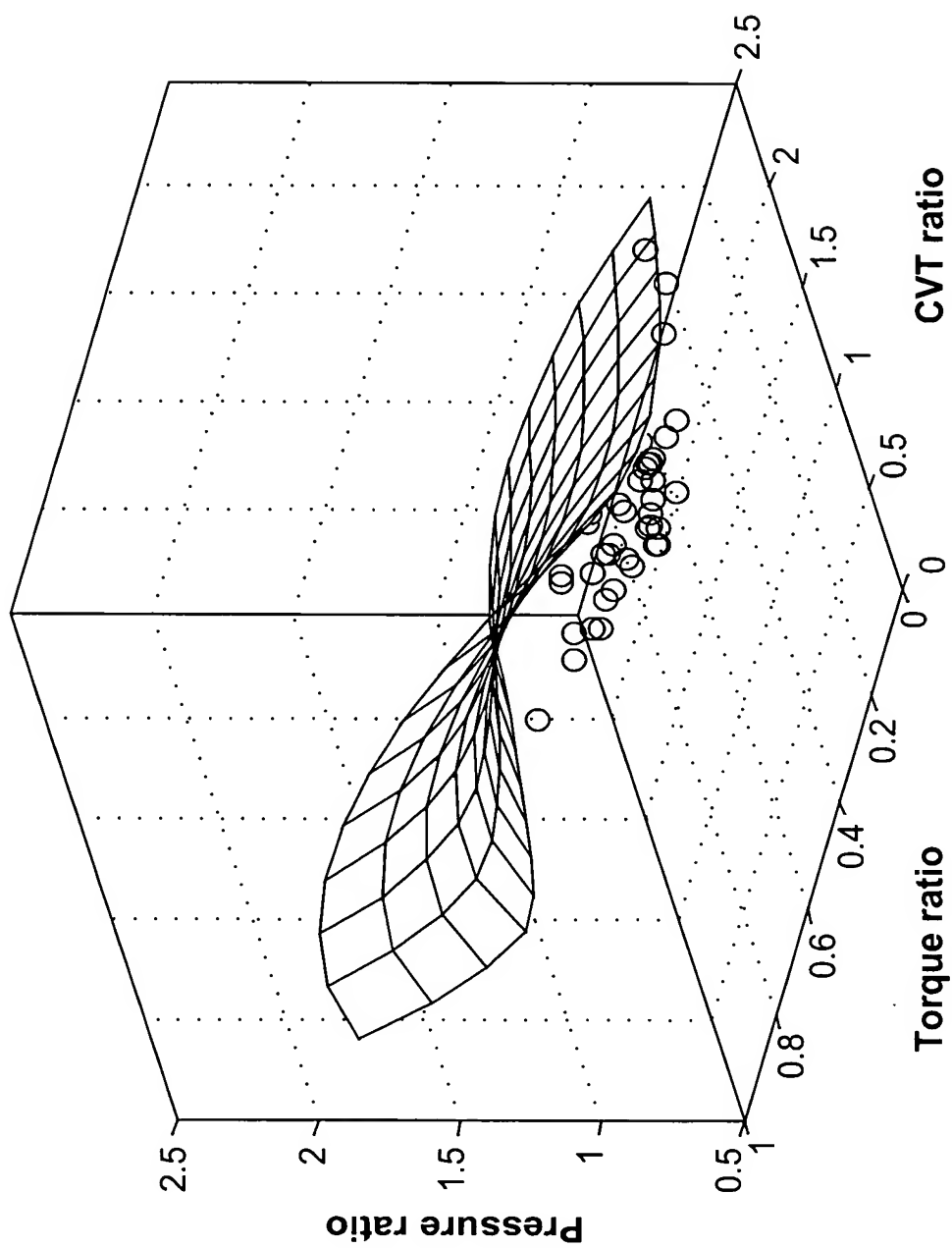


FIG. 24

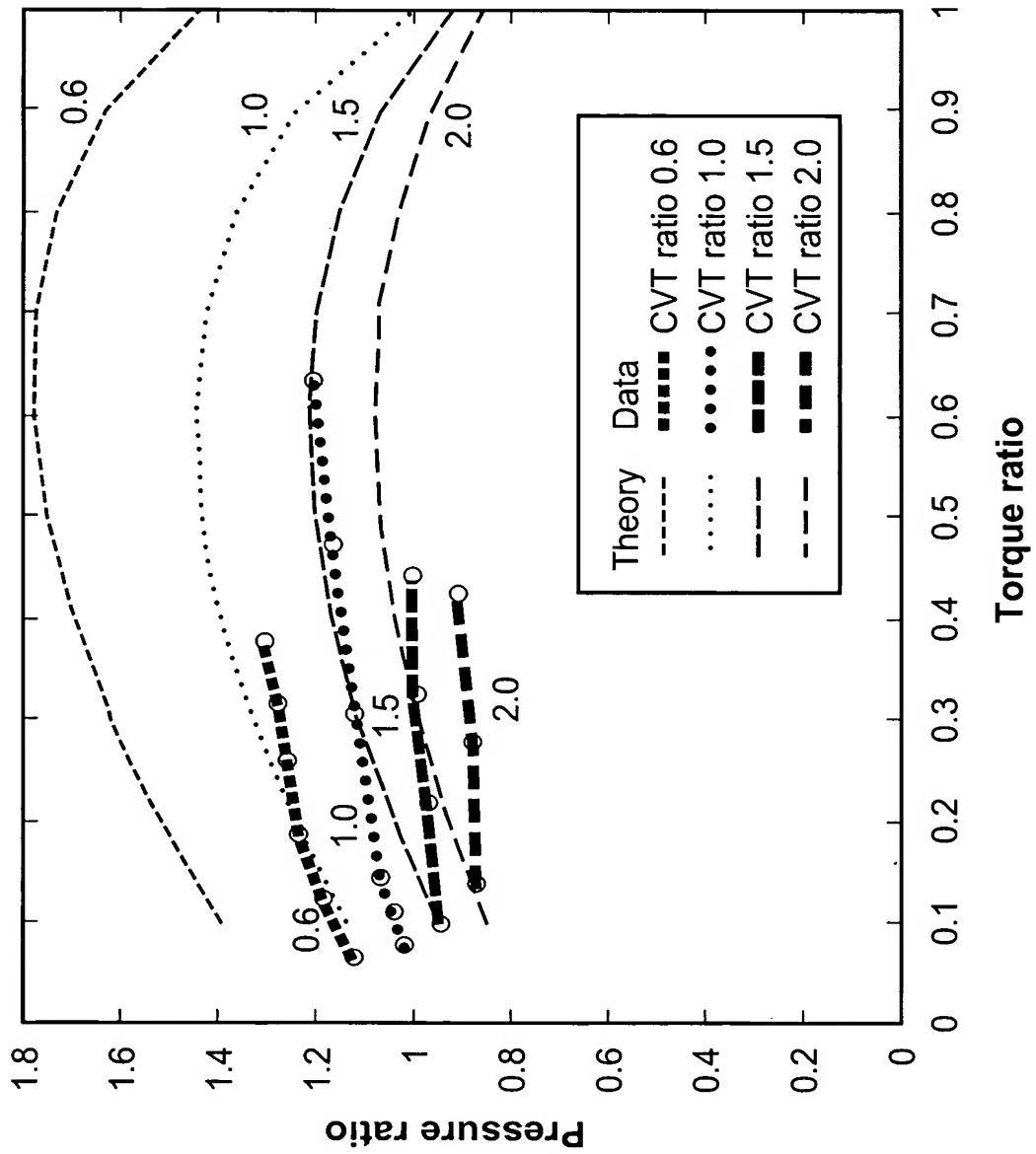
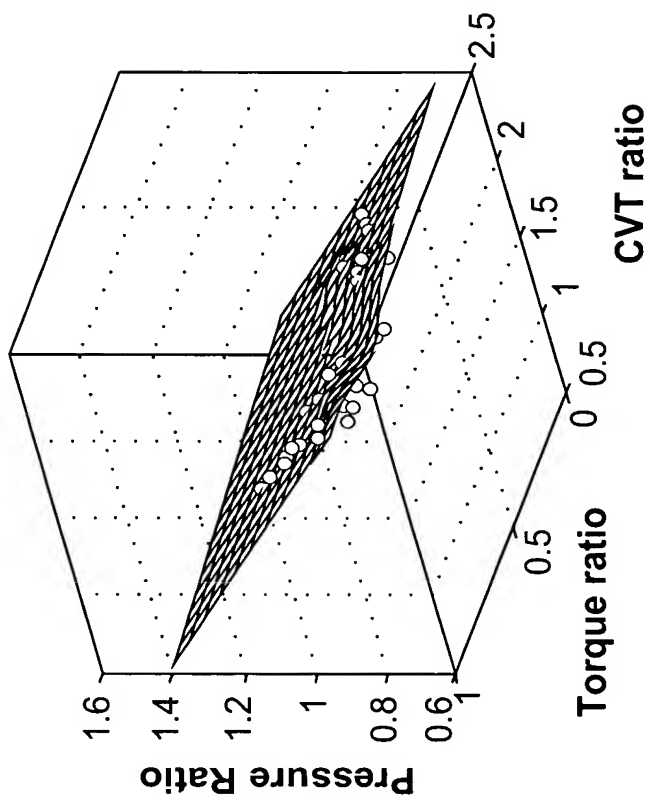
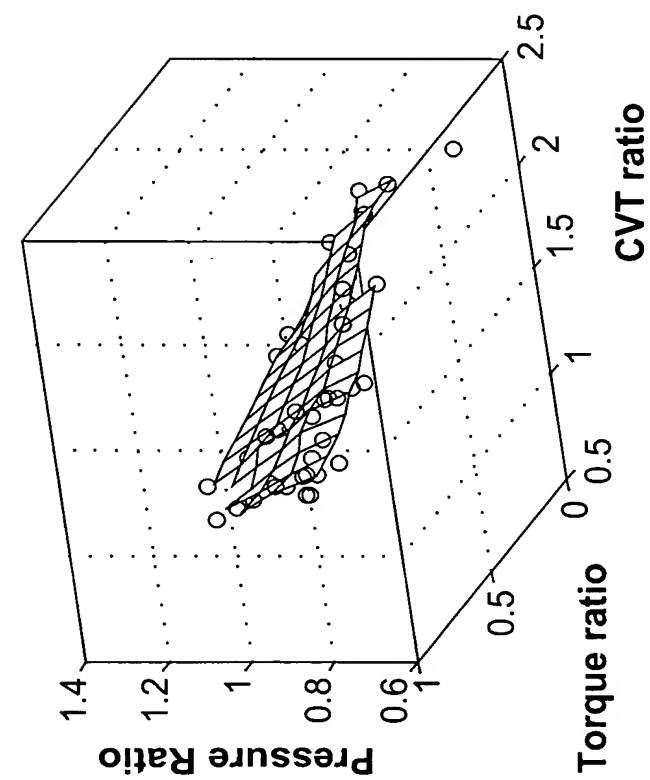


FIG. 25

+



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FIG. 26

+

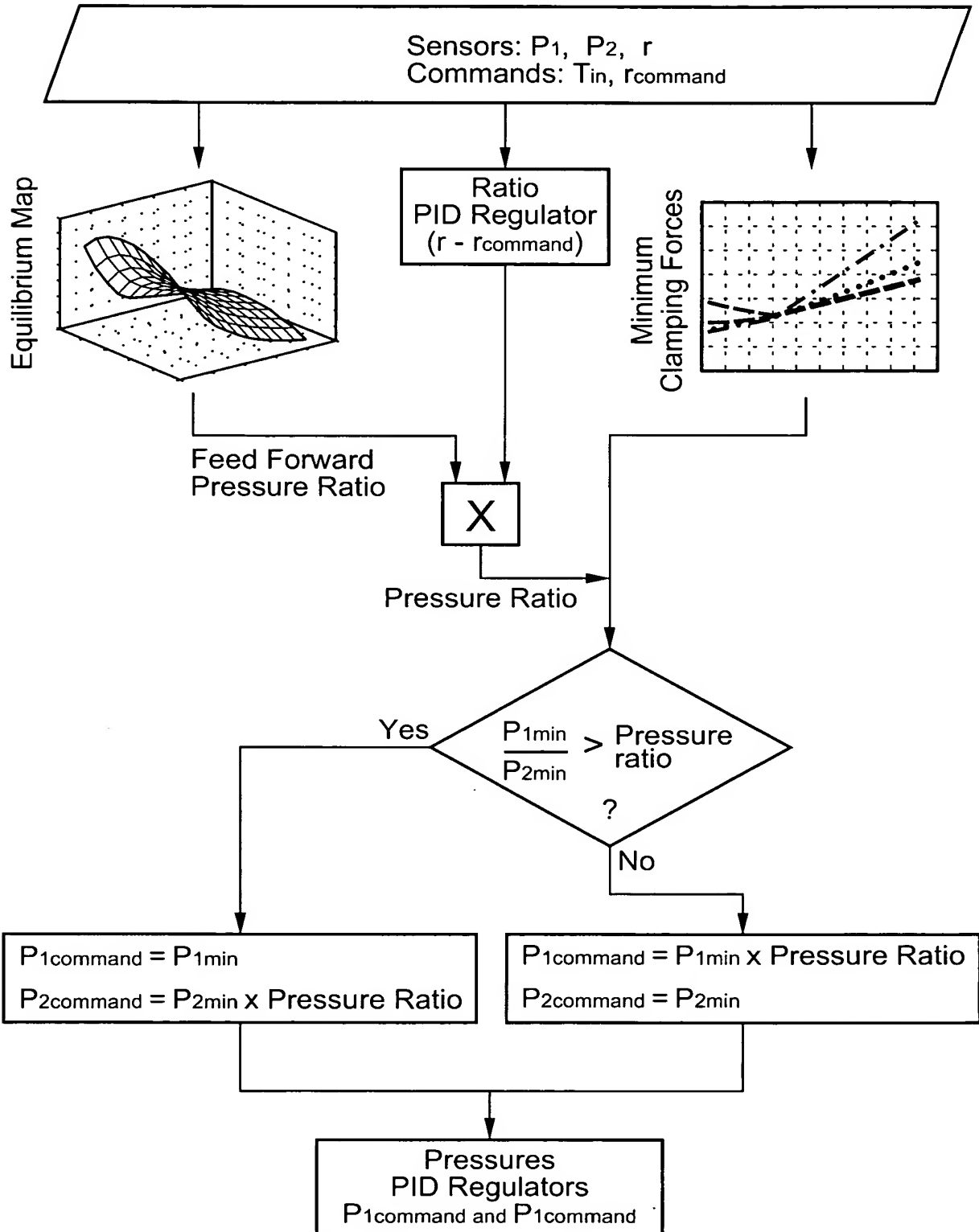


FIG. 27



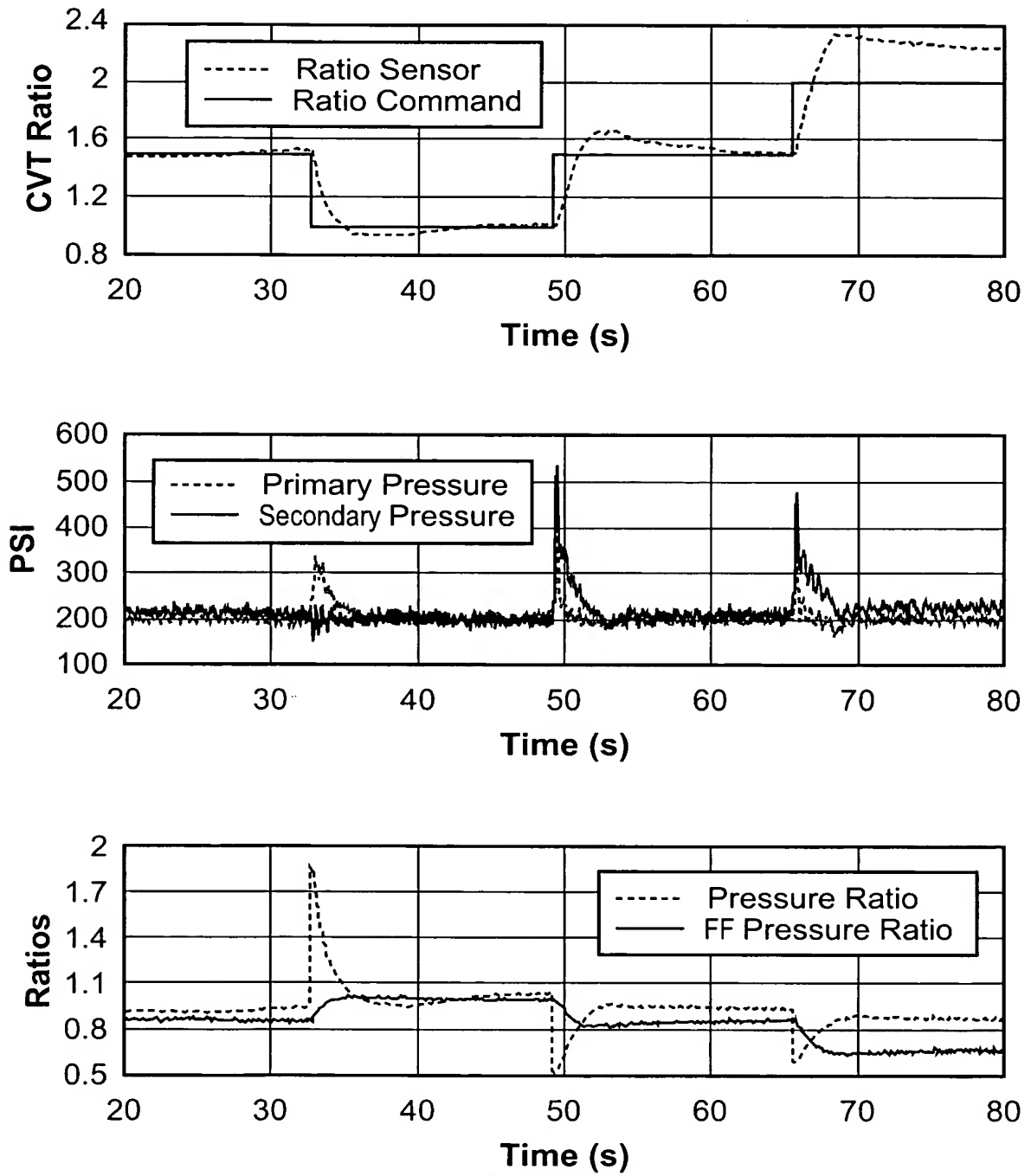
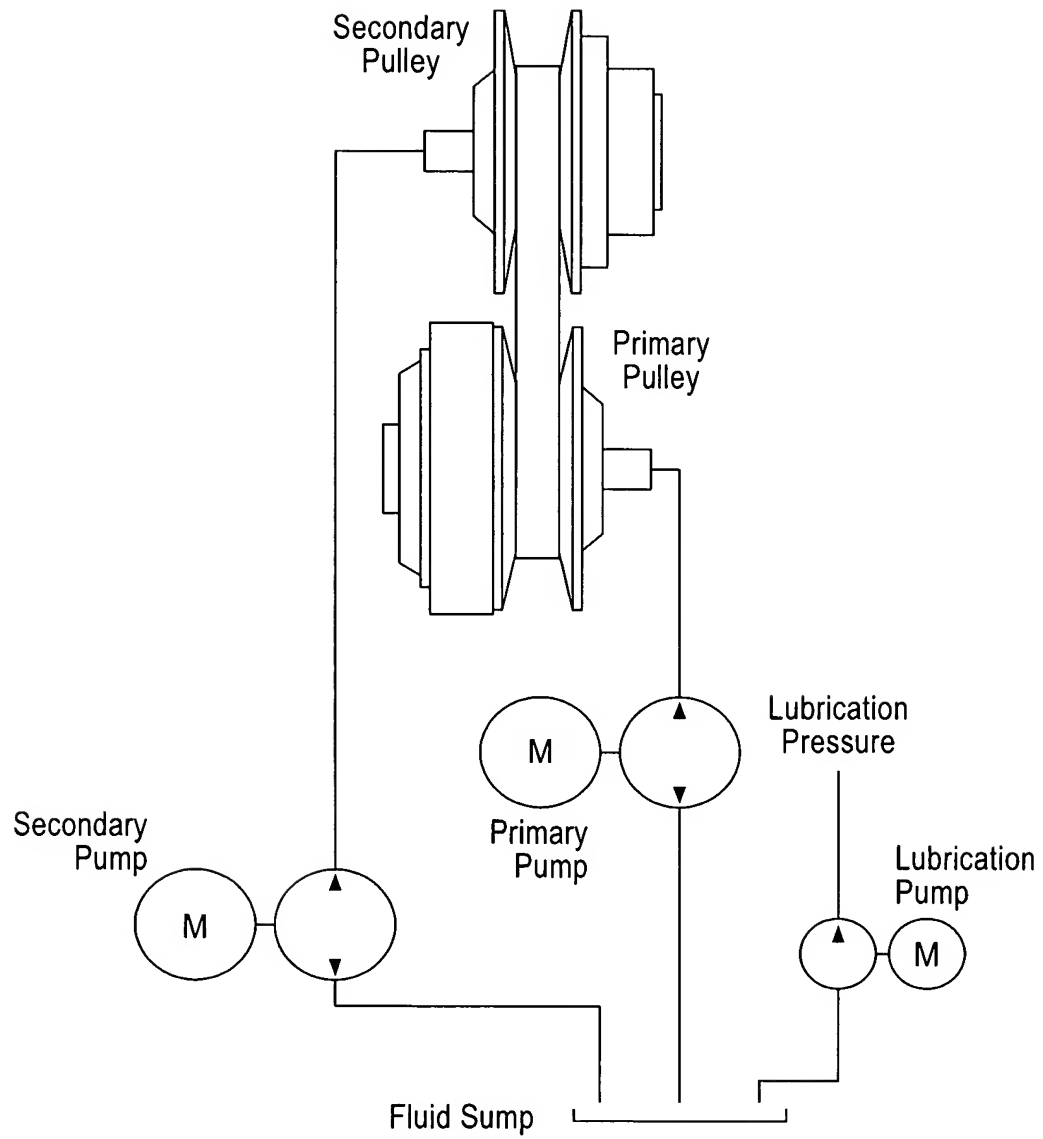


FIG. 28

**FIG. 29**

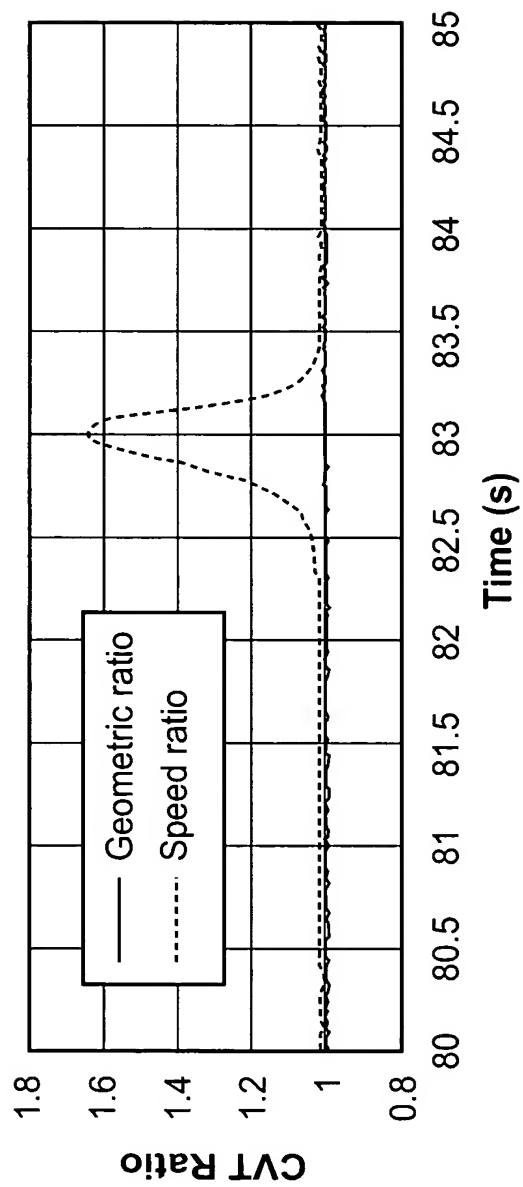
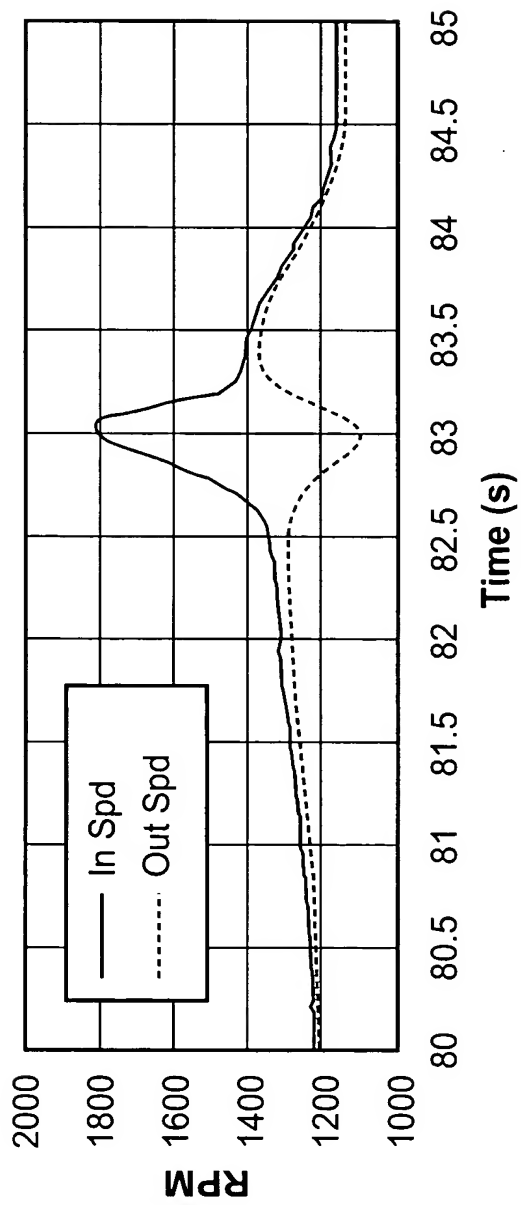


FIG. 30